

REMARKS/ARGUMENTS

In the Office Action of May 5, 2009, claims 1-11 are rejected. In response, claims 1-3 have been amended and new claims 13-20 have been added. Support for the amendments to claims 1-3 is found in Applicants' specification at, for example, original claims 1-3, Figs. 1-6 and pages 4-7. Support for the new claims 13-15 is found in Applicants' specification at, for example, original claims 1-3, Figs. 1-6 and pages 4-7. Support for the new claims 16-20 is found in Applicants' specification at, for example, original claim 1, Figs. 1-6, pages 4, lines 15-26, and page 5, lines 1-15. Applicants hereby request reconsideration of the application in view of the claim amendments, the new claims and the below-provided remarks.

Claim Rejections under 35 U.S.C. 103

Claims 1-3, 5 and 7 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Van Dalfsen et al. (U.S. Pat. Pub. No. 2001/0005186 A1, hereinafter "Van Dalfsen") in view of Kwak et al. (U.S. Pat. No. 6,166,781, hereinafter "Kwak") further in view of Zlotnick (U.S. Pat. No. 6,522,784 B1). Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Van Dalfsen, Kwak and Zlotnick and further in view of Okada et al. (U.S. Pat. No. 5,854,799, hereinafter "Okada"). Claims 8-11 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Van Dalfsen, Kwak and Zlotnick and further in view of Lengyel (U.S. Pat. No. 6,614,428 B1). However, as amended, Applicants respectfully submit that the pending claims are patentable over the cited art for the reasons provided below.

Independent Claim 1

Claim 1 has been amended to remove the phrase "wherein elements of each of said first and second memories represent absolute values associated with neighboring pixels by which a quantization error is determined at a current pixel value." Additionally, claim 1 has been amended to add the phrase that "*multiple quantization errors of different neighboring pixels of a current pixel are used to quantize the current pixel.*"

In the Office Action, Van Dalfsen is cited for teaching the limitation of a “*video circuit for processing video signals which show images on a display panel with linear light transition, comprising a gamma correction circuit, a quantizer and a sub-field generator circuit*” of claim 1. (See page 3 of the Office Action). Kwak is cited for teaching the limitation of “*a coarse adjustment of the quantization is made in a first random-access memory and a fine adjustment of the quantization is made in a second random-access memory*” of claim 1. (See pages 3 and 4 of the Office Action). Zlotnick is cited for teaching the limitation of “*elements of each of said first and second memories represent absolute values associated with neighboring pixels by which a quantization error is determined at a current pixel value*” of claim 1. (See pages 4 and 5 of the Office Action).

However, Applicants respectfully assert that the combination of Van Dalfsen, Kwak and Zlotnick fails to teach all of the limitations of amended claim 1. In particular, Applicants respectfully assert that Kwak fails to teach that “*a coarse adjustment of the quantization is made in a first random-access memory and a fine adjustment of the quantization is made in a second random-access memory,*” as recited in claim 1. Additionally, Applicants respectfully assert that the combination of Van Dalfsen, Kwak and Zlotnick fails to teach that “*multiple quantization errors of different neighboring pixels of a current pixel are used to quantize the current pixel,*” as recited in amended claim 1. As a result, Applicants respectfully assert that amended claim 1 is not obvious over Van Dalfsen, Kwak and Zlotnick.

Kwak teaches that a non-linear characteristic correction apparatus includes a bit divider (82), a first look up table (LUT) 84, a second LUT (86), a multiplier (90) and an adder (88). (See Fig. 7 and column 8, line 20-25 of Kwak). The Office Action states that the second LUT (86) multiplies and makes a coarse adjustment and that the first LUT (84) adds and makes a fine adjustment. (See the bottom two lines on page 3 of the Office Action). However, Applicants respectfully disagree.

Kwak teaches that the multiplier (90) multiplies the data read from the second LUT (86) with the lower bits and outputs the product to the adder (88) and that the adder (88) adds the data from the first LUT (84) to the output from the multiplier (90) and outputs the sum. (See Fig. 8, in particular steps 106, 108 and 110, and column 9, lines

12-17 of Kwak). However, the multiplier (90) and the adder (88) are separate from the first LUT (84) and the second LUT (86). Thus, Applicants respectfully assert that Kwak fails to teach that the second LUT (86) multiplies the data read from the second LUT (86) itself with the lower bits and outputs the product to the adder (88). Additionally, Applicants respectfully assert that Kwak fails to teach that the first LUT (84) adds the data from the first LUT (84) itself to the output from the second LUT (86) and outputs the sum. Thus, Applicants respectfully assert that Kwak fails to teach the above-identified limitation of amended claim 1.

Additionally, Applicants respectfully assert that the combination of Van Dalfsen, Kwak and Zlotnick fails to teach that “*multiple quantization errors of different neighboring pixels of a current pixel are used to quantize the current pixel,*” as recited in amended claim 1.

Thus, Applicants respectfully assert that the combination of Van Dalfsen, Kwak and Zlotnick fails to teach all of the limitations of amended claim 1. As a result, Applicants respectfully assert that amended claim 1 is not obvious over Van Dalfsen, Kwak and Zlotnick.

Independent Claim 2

Claim 2 has been amended to in a similar fashion to claim 1.

In the Office Action, Kwak is cited for teaching the limitation of “*most significant bits are quantized in a first random-access memory and least significant bits are quantized in a second random-access memory*” of claim 2. (See pages 5 and 6 of the Office Action). However, Applicants respectfully assert that Kwak fails to teach the above-identified limitation of claim 2.

Kwak teaches that a non-linear characteristic correction apparatus includes a first look up table (LUT) (20), a second LUT (22), a multiplier (24), and an adder (26). (See Fig. 2 and the paragraph between column 4, line 66 and column 5, line 20 of Kwak). Kwak further teaches that the first LUT (20) stores first data and reads the stored first data using most significant bits of a N-bit digital input signal as an address and that the second LUT (22) stores second data and reads the stored second data using most significant bits of the N-bit digital input signal as an address. (See the paragraph between

column 4, line 66 and column 5, line 20 of Kwak). Additionally, Kwak teaches that the multiplier (24) multiplies data read from the second LUT (22) with least significant bits of the N-bit digital input signal and outputs the product to the adder 26. (See column 5, lines 21-30 of Kwak). That is, both the first LUT (20) and the second LUT (22) of Kwak store data and reads the stored data using the most significant bits of the N-bit digital input signal as an address, while the multiplier (24) of Kwak multiplies data with least significant bits of the N-bit digital input signal.

Because the multiplier (24) is separate from both the first LUT (20) and the second LUT (22), Applicants respectfully assert that Kwak fails to teach that most significant bits of the N-bit digital input signal are quantized in one of the first LUT (20) and the second LUT (22) and least significant bits of the N-bit digital input signal are quantized in another one of the first LUT (20) and the second LUT (22). Thus, Applicants respectfully assert that Kwak fails to teach that “*most significant bits are quantized in a first random-access memory and least significant bits are quantized in a second random-access memory,*” as recited in claim 2.

Additionally, Applicants respectfully assert that the combination of Van Dalfsen, Kwak and Zlotnick fails to teach that “*multiple quantization errors of different neighboring pixels of a current pixel are used to quantize the current pixel,*” as recited in amended claim 2.

Thus, Applicants respectfully assert that the combination of Van Dalfsen, Kwak and Zlotnick fails to teach all of the limitations of amended claim 2. As a result, Applicants respectfully assert that amended claim 2 is not obvious over Van Dalfsen, Kwak and Zlotnick.

Independent Claim 3

Claim 3 has been amended to in a similar fashion to claim 1. Applicants respectfully assert that the combination of Van Dalfsen, Kwak and Zlotnick fails to teach that “*multiple quantization errors of different neighboring pixels of a current pixel are used to quantize the current pixel,*” as recited in amended claim 3. Thus, Applicants respectfully assert that the combination of Van Dalfsen, Kwak and Zlotnick fails to teach

all of the limitations of amended claim 3. As a result, Applicants respectfully assert that amended claim 3 is not obvious over Van Dalfsen, Kwak and Zlotnick.

Dependent Claims 4-11

Claims 4-11 depend from and incorporate all of the limitations of independent claim 3. Thus, Applicants respectfully assert that claims 4-11 are allowable at least based on an allowable claim 3.

New Claims 13-20

New claims 13-20 have been added. Claims 13 and 16-18 depend from and incorporate all of the limitations of independent claim 1. Thus, Applicants respectfully assert that claims 13 and 16-18 are allowable at least based on an allowable claim 1. Claims 14 and 19 depend from and incorporate all of the limitations of independent claim 2. Thus, Applicants respectfully assert that claims 14 and 19 are allowable at least based on an allowable claim 2. Claim 15 and 20 depend from and incorporate all of the limitations of independent claim 3. Thus, Applicants respectfully assert that claims 15 and 20 are allowable at least based on an allowable claim 3.

Additionally, Applicants respectfully assert that each of the new claims 13-20 may be allowable because of their individual limitations, respectively.

CONCLUSION

Applicants respectfully request reconsideration of the claims in view of the amendments and remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,

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